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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/012,207	11/05/2001	Vibha Goel	11971-012001/	5310
20985	7590	09/21/2005	EXAMINER	
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			SEDIGHIAN, REZA	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/012,207

Applicant(s)

GOEL, VIBHA

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 20-27, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 17, 19 and 28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. This communication is responsive to applicant's 6/27/05 amendments and remarks. Claims 1-30 are now pending.

2. The reference numeral "222" of page 6, line 2, should change to ---202 ---.  
Correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2, 6, 11, 13, 16, 26, 27, and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 recites the limitation "said n channels" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 recites the limitation "said optical lines" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As to claim 11, it is not clear what is meant by "sampling and optical signal...".

Claim 13 recites the limitation "said error" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 16 recites the limitation "said elements" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 26 recites the limitation "said error" in line 2, and "said optical channels" in line 2. There are insufficient antecedent basis for these limitations in the claim.

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Claim 27 recites the limitation "said optical channel" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 28 recites the limitation "said signal indicative of said error" in line 2. There is insufficient antecedent basis for this limitation in the claim.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiragaki (US Patent No: 5,663,820).

Regarding claim 1, Shiragaki teaches a signal switching system (fig. 4), comprising: a signal switching part (40, fig. 4) receiving a plurality of inputs and switching any of the plurality of inputs to any of a plurality of outputs (col. 5, lines 17-23); an optical router (the optical routing and switching system of node B, fig. 4) receiving the signals from the outputs and optically routing (50, 54, 56, 59, fig. 4) the signals (col. 5, lines 30-40), wherein the optical router (50, 54, 56, 59 of node B in fig. 4) including a fault detection element (53, fig. 4) which produces a fault signal to the switching part (col. 5, lines 41-55), and wherein the switching part (40, fig. 4) responding

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to the fault signal to switch one of the inputs to one of the outputs based on the fault signal (col. 5, lines 52-55).

Regarding claim 2, Shiragaki teaches the switch part includes an  $n$  by  $n$  switch (switch 40 is a  $n \times n$  switch), wherein at least a plurality of the channels are redundancy channels (some of the input channels to the switch 40 can be redundant channels).

Regarding claim 3, Shiragaki teaches the switching part includes an optical switch (40, fig. 4).

Regarding claims 4-5, Shiragaki teaches the switching part includes a  $16 \times 16$  switch, or  $8 \times 8$  switch (note that switch 40 has  $n$  inputs and  $n$  outputs, for example it can be an  $8 \times 8$  switch, or a  $16 \times 16$  switch).

Regarding claim 6, Shiragaki teaches the optical switch includes an optical detecting element which detects a signal on one of the optical lines (col. 5, lines 50-52).

Regarding claim 7, Shiragaki teaches the signal is formed as an amplitude modulated signal on the optical lines (col. 7, lines 15-35).

7. Claims 8-13, 15-16, 18, 20-27, and 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by McDermott, III et al. (US Patent No: 6,894,970).

Regarding claim 8, McDermott teaches a method, comprising: sending a plurality of channels (col. 4, lines 23-40) to a plurality of routers (10, 18-0, 18-1, 18-2, 18-3, 18-4, fig. 1C), wherein the routers have spare capability for failed routers (col. 4, lines 35-40); and providing an optical signal from the routers indicating failure in the routers (col. 4, lines 63-67, col. 5, lines 4-14). As to claim 14, McDermott teaches an all optical switch (140, 15-1, fig. 1B) capable of switching a plurality of inputs to outputs (col. 6, lines 25-

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40) and having a control mechanism (col. 11, lines 42-51 and 503, fig. 5), and a router array (18-0, 18-4, fig. 1C) producing an optical error signal indicative of errors in the router array (col. 4, lines 33-42, 63-67, col. 5, lines 4-15), wherein the error signal being couple to the optical switch and being used by the control mechanism (col. 10, lines 49-63).

Regarding claims 9 and 15, McDermott teaches the optical error signal is modulated on one of the outputs (col. 10, lines 59-60).

Regarding claims 10, 12, and 16, McDermott teaches the optical error signal is amplitude modulated on one of the elements (col. 10, lines 55-56, col. 11, lines 65-67, col. 12, lines 1-5).

Regarding claim 11, McDermott teaches an optical signal as part of sending to determine the failure (col. 11, lines 49-51).

Regarding claim 13, McDermott teaches the signal include information indicative of a frequency of the error (col. 9, lines 47-50).

Regarding claim 18, McDermott teaches the control mechanism operates based on electrical signals (col. 11, lines 49-51).

Regarding claims 20-22, McDermott teaches the switching part is an nxn switch, or 16x16 switch, or 8x8 switch (15, 501, fig. 5).

Regarding claim 23, McDermott teaches carrying out all optical switching (140, 15-1, fig. 1B) between a plurality of channels (col. 10, lines 9-12 and 110-1, 110-2, 110-3, fig. 1B) and a plurality of routers (18-0, 18-1, 18-2, 18-3, 18-4, fig. 1C).

Regarding claim 24, McDermott teaches signaling from the routers to effect the optical switching (col. 10, lines 52-63).

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Regarding claim 25, McDermott teaches determining errors in the routers (col. 4, lines 34-40) and producing signals indicative of the errors (col. 4, lines 63-67).

Regarding claim 26, McDermott teaches signaling inducing a signal indicative of the error on one of the optical channels (col. 10, lines 52-62).

Regarding claim 27, McDermott teaches the inducing comprises amplitude modulating the signal on the optical channel (col. 10, lines 55-56, col. 11, lines 65-67, col. 12, lines 1-5).

Regarding claim 29, McDermott teaches the switching comprises compensating for errors in the routers (col. 4, lines 33-39).

Regarding claim 30, McDermott teaches the compensating comprises forming a switching path which sends signals to routers which do not have signal errors therein (col. 4, lines 63-67, col. 5, lines 1-5).

8. Claims 23-27 and 29-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Holender (US Patent No: 5,729,548).

Regarding claim 23, Holender teaches a method comprising: carrying out all optical switching (810, fig. 8) between a plurality of channels (col. 9, lines 33-55) and a plurality of routers (805, 815, fig. 8).

Regarding claim 24, Holender teaches providing signaling from the plurality of routers (805, 815, fig. 8) to effect the optical switching (810, fig. 8).

Regarding claim 25, Holender teaches the signaling comprises determining errors in the routers and producing signals indicative of the errors (col. 10, lines 61-64, col. 11,

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lines 6-9, note that the connections through routers 805 and 815 are established by the controller 820 and are dynamically variable as to handle a failure).

Regarding claim 26, Holender teaches the signaling comprises inducing a signal indicative of the error on one of the optical channels (col. 10, lines 26-34).

Regarding claim 27, Holender teaches the inducing comprises amplitude modulating the signal on the optical channel (col. 2, lines 25-35, 43-52).

Regarding claim 29, Holender teaches the switching comprises compensating for errors in the routers (col. 11, lines 6-9).

Regarding claim 30, Holender teaches the compensating comprises forming a switching path which sends signals to routers which do not have signal errors therein (col. 10, lines 29-34, col. 11, lines 4-9, note that controller 820 bidirectionally communicate and control each of the router 805 and 815 and the switch 810, and the connections through routers 805 and 815 are dynamically variable as to handle a failure).

9. Claims 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al. (US Patent No: 6,493,119).

Regarding claim 23, Kuo teaches a method comprising: carrying out all optical switching (15, fig. 4) between a plurality of channels (col. 4, lines 63-67, col. 5, lines 1-7) and a plurality of routers (15<sub>1</sub>, 15<sub>2</sub>, 15<sub>N</sub>, fig. 4).

10. Claims 23 is rejected under 35 U.S.C. 102(e) as being anticipated by Shew et al. (US Patent No: 6,530,032).



Regarding claim 23, Shew teaches a method comprising: carrying out all optical switching (col. 3, lines 32-35 and S1, S2, S3, fig. 7a and fig. 8b) between a plurality of channels (col. 2, lines 8-11, col. 6, lines 30-52) and a plurality of routers (R1, R2, R3, R4, fig. 7a and 160, 162, fig. 8b).

11. Claims 8, 23-26, and 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Chiu et al. (US Patent Application Publication No: 2002/0063916 A1).

Regarding claim 8, Chiu teaches a method comprising: sending a plurality of channels (page 3, paragraphs 0037, 0044 and fig. 3) to a plurality of routers (100<sub>B1</sub>, 100<sub>B2</sub>, fig. 3), where the plurality of routers have spare capability for failed routers (page 3, paragraph 0045); and providing an optical signal from the routers indicating failure in the routers (page 3, paragraph 0045).

Regarding claim 23, Chiu teaches a method comprising: carrying out all optical switching (OXC<sub>B</sub>, fig. 3) between a plurality of channels (page 3, paragraphs 0044, 0045) and a plurality of routers (100<sub>B1</sub>, 100<sub>B2</sub>, fig. 3).

Regarding claim 24, Chiu teaches providing signaling from the plurality of routers to effect the optical switching (page 3, paragraph 0045).

Regarding claim 25, Chiu teaches signaling comprises determining errors in the routers and producing signals indicative of the errors (page 3, paragraph 0045).

Regarding claim 26, Chiu teaches the signaling comprises inducing a signal indicative of the error on one of the optical channels (page 3, paragraphs 0044, 0045).

Regarding claim 29, Chiu teaches the switching comprises compensating for errors in the routers (page 3, paragraph 0045).

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Regarding claim 30, Chiu teaches the compensating comprises forming a switching path (OXC<sub>B</sub>, fig. 3) which sends signals to routers (100<sub>B2</sub>, fig. 3) which do not have signal errors therein (page 3, paragraph 0045).

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu et al. (US Patent Application Publication No: 2002/0063916 A1).

Regarding claim 14, Chiu teaches a system comprising: an all optical switching (OXC<sub>B</sub>, fig. 3) capable of switching any of a plurality of inputs to any of a plurality of outputs (page 2, paragraph 0031 and OXC<sub>B</sub>, fig. 3); and a router array (100<sub>B1</sub>, 100<sub>B2</sub>, fig. 3) producing an optical error signal indicative of errors in the router array (page 3, paragraph 0045). Chiu differs from the claimed invention in that Chiu does not specifically disclose the switch include a control mechanism which control the switching, and the optical error signal being coupled to the optical switch and being used by the control mechanism. However, Chiu teaches a set of basic primitives to configure the respective OXC and to enable the respective OXC to convey information to the respective routers, and a mediation device translates the logical primitives to and from the proprietary controls of OXC (page 3, paragraph 0038). Chiu further teaches OXC<sub>B</sub> that connects to the failed router 100<sub>B1</sub> directly may detect the failure and coordinate the setup of the new lightpath link between routers 100<sub>A</sub>, and 100<sub>B2</sub> (page 3, paragraph 0045).

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Accordingly, it would have been obvious to a person of ordinary skill in the art at the time of invention that the OXC<sub>B</sub> of Chiu include a control mechanism which controls the switch, and wherein the error signal can be coupled to the switch and can be used by the control mechanism to setup the new lightpath and connection to the backup router to provide restoration in case of router failure.

14. Claims 17, 19, and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Applicant's arguments filed 6/27/05 with respect to claims 8-22 have been considered but are moot in view of the new ground(s) of rejection. As to claims 1 and 23, applicant's arguments have been fully considered but they are not persuasive.

Remark states Shiragaki does not teach a switching part that is configured to switch any plurality of inputs to any plurality of outputs. However, Shiragaki teaches a switch 40 having a plurality of input ports and output ports, and switch 40 can switch any of the plurality of inputs to any one of the outputs (col. 5, lines 52-55). Remark further teaches Shiragaki does not disclose a router. An optical router is device that provide switching among the network, or routes the signal in a specified direction, or routes the signal from one point to another. Shiragaki teaches (fig. 4) light signals are routed from demultiplexers 50 to switch 54 that further switches or routes the signals to different outputs. Accordingly, light signals are routed by optical switch 54 from input ports to output ports. As to an nxn optical switch, Shiragaki teaches an optical switch 40 having n

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input port and n output port, therefore, the optical switch is an nxn switch. Remark further states Holender teaches a switching that only occurs between a plurality of channels and one router, not a plurality of routers. However, Holender teaches a router 805, a switch 810, and another router 815, and it is obvious that switch 810 switch and routes plurality of channels outputted by the router 805 to router 815. In another word, switch 810 is positioned between the two routers 805 and 815, and can switch the plurality of channels between the routers, or between the two routers.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
M. R. SEDIGHIAN  
PRIMARY EXAMINER